MANAGEMENT PROBLEMS AND OPPORTUNITIES

The management goals, objectives, and strategies for the Current River Watershed were developed using information collected from the Current River Watershed Inventory and Assessment (WIA) and direction provided by the Ozark Regional Management Guidelines (1998), Missouri Department of Conservation (MDC) Strategic Plan, and the Fisheries Division Five Year Strategic Plan. Objectives and strategies were written for instream and riparian habitat, water quality, aquatic biota, recreational use, and hydrography. All goals are of equal importance, with objectives listed in prioritized order whenever possible. This plan includes only those activities and results that can reasonably be expected to be achieved or influenced during the next 25 years. Completion of these objectives will depend upon their status in overall regional and division priorities and the availability of human resources and funds.

GOAL I: PROTECT AND IMPROVE RIPARIAN AND AQUATIC HABITATS IN THE CURRENT RIVER WATERSHED.

Status: Many streams in various portions of the watershed lack sufficient riparian corridors. Streams within the Little Black River Hydrologic Unit have the least percentage of forested riparian corridors. In addition, channelization has significantly altered stream habitats primarily in the Little Black River Hydrologic Unit. Other activities which can potentially cause habitat degradation without adequate attention include improper sand and gravel removal methods and improper bridge design and maintenance.

Objective 1.1: With the assistance of willing landowners, over a 25-year period, increase by 25% the proportion of streams with a sufficient forested corridor as defined in NRCS (2000).

<u>Strategy</u>: Referencing the riparian corridor enhancement potential ranking for eleven digit units of the Current River Watershed presented in <u>Figure Mp01</u> (developed through evaluations of riparian forest cover absence, losing streams, unit size, and presence of sensitive species), direct appropriate riparian corridor improvement efforts towards the following ranked drainage units: High= Little Black River; Medium= Upper Current River, Current River-Buffalo Creek, Current River-Sinking Creek, Lower Current River; Low= Middle Current River, Spring Valley, Pike Creek.

- 1. Using satellite imagery, aerial photography, aerial stream survey documentation, and/or field investigations, document the conditions of riparian corridors and stream banks once every 10 years. Future projects such as the Missouri Resource Assessment Partnership Land Cover Classification should be encouraged in order to ensure that adequate data is available to allow efficient analysis of riparian corridor conditions over time.
- 2. Ensure all MDC Areas represent examples of proper riparian corridor stewardship by following established best management practices for riparian restoration/protection.
- 3. In cooperation with regional Private Land Services Division personnel, provide appropriate

agencies such as Natural Resources Conservation Service (NRCS) and Soil and Water Conservation Districts (SWCDs) as well as willing agricultural-oriented businesses such as farm centers, agricultural chemical dealers, etc. with free brochures dealing with riparian corridor issues in order to facilitate increased awareness and dissemination of this information to landowners.

4. Facilitate riparian corridor restoration/protection by willing landowners in accordance with applicable guidelines through the use of available funding and/or technical assistance.

Objective 1.2: Limit the negative impacts of sand and gravel removal within the watershed.

Strategy: Education of sand and gravel operators regarding limiting the potential negative impacts associated with sand and gravel removal, dynamic documentation of permitted sand and gravel removal sites, assisting with continued research regarding gravel removal, and encouragement of the efficient enforcement of violations associated with sand and gravel removal will be important in limiting the potential negative impacts of gravel removal.

- 1. Work with MDC Science Division, Outreach and Education Division, and appropriate agencies such as MDNR in the development of an educational video illustrating proper and improper sand and gravel removal methods, proper site selection, and the consequences of improper sand and gravel removal operations.
- 2. Work with gravel removal operators as well as willing landowners to create a geographic information system (GIS) database of appropriate potential sand and gravel removal sites (to be updated as needed).
- 3. Work with appropriate agencies to develop a (GIS) database (to be updated annually) of permitted sand and gravel removal sites.
- 4. Continue to assist appropriate state and federal agencies in the enforcement of existing water quality laws in regards to sand and gravel removal
- 5. Assist with additional research efforts regarding the effects of instream sand and gravel removal in order to develop measures that adequately protect aquatic resources.
- 6. Work with stakeholder groups such as landowners and governmental and non-governmental organizations to ensure appropriate gravel mining regulations exist to prevent damage to stream resources as well as property within the watershed due to improper gravel removal.

GOAL II: PROTECT SURFACE AND GROUND WATER QUALITY IN THE CURRENT RIVER WATERSHED.

Status: Overall water quality within the watershed appears to be relatively good based on the limited scope of analysis provided in this document. Within the watershed (excluding the Jacks Fork), there are no streams included in the 1998 303d list. However, two issues that may require further monitoring/investigation include elevated lead concentrations at various sites within the watershed as noted in a 1995 NPS commissioned water quality study and past indications of poor water quality at some sites within the Little Black River Hydrologic Unit. Other items which always have the potential to cause water quality problems in this watershed as in any other include large numbers of livestock in riparian zones for extended periods of time, private septic system failure, increased nutrients from municipal sewage treatment facilities, improper sand and gravel removal and poor land use practices

such as indiscriminate land clearing. These can result in periodic high fecal coliform levels, nutrient loading, and/or increased sediment and gravel deposition.

Objective 1.1: Ensure that watershed streams meet or exceed state standards for water quality.

Strategy: Due to the connection between the surface water and ground water systems in the watershed, protection of surface waters, both permanent and intermittent, can greatly contribute to the enhancement of ground water quality. MDC lands should be managed to provide good examples of water quality protection and form the basis for MDC efforts to promote water quality protection on both public and private land. Education of the citizenry and land owners on water quality issues and land stewardship is the best hope for improving water quality. Protecting riparian corridors will help to reduce and filter surface runoff as well as provide stream bank and channel stability. Ensuring that additional water quality monitoring (including bio-monitoring), particularly in those areas that have exhibited some water quality concerns in the recent past, is conducted in order to better delineate the degree of and solution to those problems will also be important. Encouragement of appropriate agencies to enforce existing water quality laws will also be required to obtain satisfactory water quality.

- 1. In cooperation with field personnel from all divisions, ensure management activities on public land, as well as MDC sponsored projects on private land, follow best management practices that protect water quality.
- 2. Encourage the establishment of a long-term monitoring project by the MDC Science Division in order to determine the impacts of MDC land management activities on water quality.
- 3. Through media contacts, personal contacts, literature development, and speaking engagements to groups such as area Stream Teams and land owners, inform the public of water quality issues and problems (e.g. karst topography, excessive siltation, animal waste runoff, gravel dredging, septic system failure etc.) and best management practices to address these problems.
- 4. In cooperation with regional private lands services personnel, encourage limiting livestock access in riparian areas and through education and/or incentive programs for private landowners.
- 5. Encourage Stream Team Monitoring of bacteria levels on the Little Black River at Mudpuppy Conservation Area and the Current River at T.L. Wright Memorial Access per MDC (1998d).
- 6. Ensure that sites exhibiting water quality problems in the recent past continue to be monitored and solutions to any current problems which may still exist, are developed.
- a. Encourage the continued monitoring by the National Park Service of sites exhibiting elevated concentrations of dissolved lead between 1973 and 1995 as noted in NPS (1995)
- b. Cooperate with MDC Science Division, MDNR, NRCS and the USGS as well as local citizens groups such as Stream Teams to develop a water quality study to include those areas in the Little Black Hydrologic Unit which have been noted to have experienced water quality problems in the past as well as areas in the unit which lack baseline data. The study should as a minimum include those parameters which have been known to exceed state water quality standards e.g. dissolved oxygen, pH, and fecal coliform.
- 7. Encourage and assist, as needed, with additional dye tracing studies within the watershed in order to further determine intrawatershed and interwatershed ground water movement as well as recharge area

of selected springs within the watershed with an emphasis on publicly owned spring outlets and, specifically, spring outlets on lands managed by the MDC.

- 8. Encourage and assist with enforcement of existing water quality laws by reviewing 404 permits, cooperating with other state and federal agencies to investigate pollution and fish kill reports, collecting water quality related data, and recommending measures to protect aquatic communities.
- 9. Encourage the incorporation of water quality data into GIS by appropriate MDC and MDNR staff in order to facilitate effective data updating and analysis. This includes the creation of a 'Designated Use' data layer based on current Rule 10 CSR 20-7.031 of the Rules of Department of Natural Resources Division 20-Clean Water Commission Chapter 7-Water Quality, Tables G and H.

GOAL III: MAINTAIN THE ABUNDANCE, DIVERSITY, AND DISTRIBUTION OF AQUATIC BIOTA AT OR ABOVE CURRENT LEVELS WHILE IMPROVING THE QUALITY OF THE GAME FISHERY IN THE CURRENT RIVER WATERSHED.

Status: Since 1930, an assemblage of 124 fish species, 43 mussel species and subspecies, 25 species of snails, 5 crayfish species, and 300 taxa of benthic macro-invertebrates have been identified throughout the Current River Watershed. A total of 169 species and subspecies of conservation concern are known to occur in the watershed. This list includes 17 fish species, 10 species of mussels, 4 species of amphibians, 5 species of crayfish, 6 species of insects, and 1 snail species. The most prominent game fish species within the watershed include the brown trout, chain pickerel, grass pickerel, largemouth bass, rainbow trout, shadow bass, smallmouth bass, walleye, and warmouth. In addition, sucker species provide an alternative recreational opportunity. Invasive exotic aquatic species within the watershed include the Asian clam, the common carp.

Objective 1.1: Maintain the diversity, abundance, and distribution of native non-sport fish, and aquatic invertebrate communities at or above current levels.

<u>Strategy</u>: High priority should be placed on protecting species of conservation concern and unique aquatic community assemblages. Focusing enhancement and protective efforts on a few species can be effective in helping other species that share the same habitat. Detecting changes in aquatic community species composition can be accomplished by conducting routine surveys of fish and invertebrate communities. In cases where significant changes in diversity, abundance, and/or distribution are noted, efforts to determine factors for the changes should be determined through cooperation with MDC fisheries research as well as other appropriate agencies and institutions. Cooperation between state and federal natural resource agencies, private land owners, and, in some instances, citizen groups will be necessary to adequately address challenges to aquatic community health.

- 1. Assist with recovery efforts for species of conservation concern within the watershed.
- 2. Survey fish communities in the watershed every 10 years at historical sampling sites using standardized sampling techniques. Initial emphasis should be placed on historic sites known in the past to harbor "species of conservation concern" and sites within the Little Black River Hydrologic Unit. Establish additional sampling sites as necessary with high priority given to MDC areas. Incorporate data into GIS in order to facilitate documentation of changes in species diversity, abundance, and/or distribution.

- 3. Using GIS, document locations and identify unique fish assemblages associated with natural features and special habitats such as spring branches for inclusion in the Natural Heritage Database.
- 4. Develop a prioritized list of stream reaches on MDC areas needing instream habitat restoration using the following criteria: presence of listed species, extent of forested stream corridor, size of stream, land use, soils, presence of permanent water, presence of sport fish, natural features and critical habitat.
- 5. If appropriate, recommend research projects in cooperation with MDC Research Staff to investigate reasons for significant changes in faunal abundance and distribution. Recommend management changes if needed.
- 6. Coordinate with MDC Research Staff and other groups (i.e. National Park Service, University of Missouri, etc.) to develop a routine mussel survey schedule for the watershed.
- 7. Coordinate with MDC Research Staff and other groups (i.e. National Park Service, Missouri Department of Natural Resources, University of Missouri, etc.) to conduct a survey of benthic invertebrates on all fifth order and larger streams.
- **Objective 1.2**: Maintain or improve populations of sport fish while maintaining a stable and diverse fish community.

<u>Strategy</u>: Proper management of game fish populations will depend on obtaining adequate surveys to determine the status of the fishery and angler attitudes as well as implementing habitat improvement projects, regulation changes, and fish stocking where needed.

- 1. Complete implementation of the Current River Walleye Management Plan as per Mayers (2000).
- 2. With approval from appropriate agencies (i.e. National Park Service, United States Army Corps of Engineers, United States Forest Service, etc.), implement instream habitat improvement projects in stream segments of heavy angler pressure which otherwise lack sufficient stream habitat with priority given to public areas.
- 3. Within the Current River Watershed, continue to assist with ongoing MDC efforts to comprehensively determine the extent of cold water resources in the state.
- 4. Maintain quality trout populations in the Special Trout Management Area (STMA) between Montauk State Park and Cedargrove, and a put-and-take Trout Management Area (TMA) between Cedargrove and Akers. Consider expanding the TMA from Akers to Pulltite.
- 5. Evaluate warmwater sportfish population of the Current River with emphasis on smallmouth bass and shadow bass.
- **Objective 1.3**: Prevent detrimental impacts on native fauna of the Current River Watershed from invasive exotic aquatic species.

<u>Strategy</u>: Preventing the introduction of invasive exotic species into the state is the easiest way to prevent detrimental impacts to native fauna. Public education regarding the prevention of invasive exotic species introduction is the key to preventing the potentially ecologically and economically damaging effects of such introductions. Once a detrimental invasive exotic species becomes established, research

will be needed to seek ways to contain or eliminate them.

- 1. Educate the public on the potentially damaging effects of 'bait bucket' introductions to lake and stream communities as well as through the development and use of flyers posted at accesses, newspaper articles, and the Internet.
- 2. Continue MDC Fisheries division participation in the Missouri Aquaculture Advisory Council (MAAC) and other organizations and advocate controlling the introduction of invasive exotic fauna into state waters.
- 3. Monitor for invasive exotic species (e.g. zebra mussel, Asian clams, etc.) and their potentially harmful effects. This can be performed during fish community surveys.
- 4. When invasive exotic species are found, participate in statewide efforts to eliminate before unacceptable levels are reached.

GOAL IV: INCREASE PUBLIC AWARENESS AND PROMOTE WISE USE OF AQUATIC RESOURCES IN THE CURRENT RIVER WATERSHED.

Status: Much of the recreational use within the watershed is associated with the Current River and specifically the Ozark National Scenic Riverways (ONSR). Recreational use estimates indicate that total annual visits to the ONSR averaged 1,546,299 between the years 1996 and 2000. The top three activities were angling, canoeing, and camping. Of these three activities, angling was the most prevalent; accounting for an estimated average of 148,983 visitors annually.

Objective 4.1: Ensure that up to date aquatic oriented recreational data is available to properly manage aquatic resources and their use.

<u>Strategy</u>: In addition to creel surveys conducted by MDC, encourage and assist appropriate agencies such as the National Park Service and United States Forest Service in the continued monitoring of aquatic oriented recreational activities within the watershed on a regular basis in order to provide data to be used for determining long term trends and problems which may need to be addressed through adjustments in management.

- 1. In cooperation with MDC Fisheries Research and Biometrics Staff, develop a routine angler survey program for the Current River Watershed to be conducted every 10 years.
- 2. Encourage the continued monitoring of river use on a regular basis as set forth in the Ozark National Scenic Riverways River Use Management Plan.
- **Objective 4.2**: Increase awareness of stream recreational opportunities and appreciation of stream ecology and advocacy to a level that will encourage a widespread and diversified public interest in the Current River Watershed.

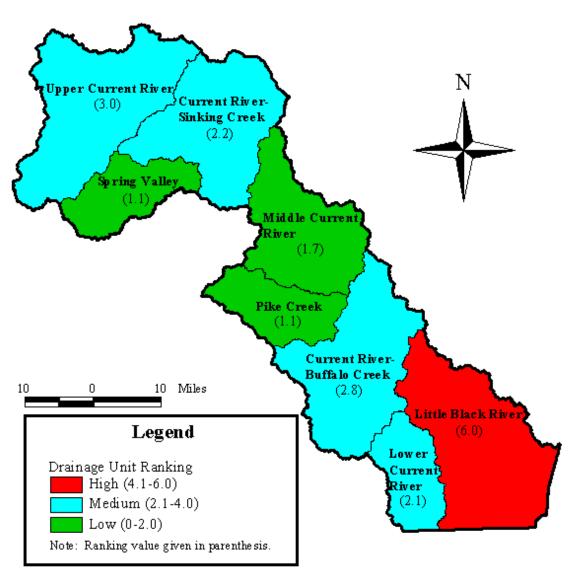
<u>Strategy</u>: Careful publicity which focuses on species of conservation concern, unique aquatic-oriented communities, as well as abundant recreationally valuable fish populations can promote a continued appreciation of these different types of natural resource elements. Providing opportunities for the public to learn about stream ecology will, hopefully, create stream advocates.

1. Continue to assist in providing the MDC annual fishing prospectus as well as the "Missouri Trout

Fishing" and "Ozark Smallmouth Bass Fishing" maps for public release in order to describe the specific fisheries and angling opportunities of selected waters.

- 2. Provide updated versions of the "Popular Public Fishing Streams in the Ozark Region" and "Popular Public Fishing Lakes in the Ozark Region" brochures in electronic form (via the MDC public Internet website) and paper form.
- 3. In cooperation with MDC Outreach and Education Division, provide the local and statewide media with timely "How to", "When to" articles and interviews that focus attention on places as well as both consumptive (i.e. gigging, float/wade fishing) and non-consumptive activities (i.e. snorkeling, floating, underwater photography)
- 4. Publicize the acquisition, development and opening of new public access and/or stream frontage sites.
- 5. In cooperation with regional field personnel from all divisions, emphasize stream ecology and good stream stewardship (utilizing brochures, aquaria, and stream tables where applicable) during presentations to school groups, youth organizations, and private landowner contacts.
- 6. Conduct outdoor youth events, such as Ecology Days at stream sites with field activities that demonstrate stream ecology and good stream stewardship.
- 7. Facilitate the development and activity of Stream Teams and other groups interested in adopting or otherwise promoting good stewardship and enjoyment of watershed streams.
- 8. Make public presentations in cooperation with regional field personnel from all divisions that focus on best management practices for private landowners.
- 9. Provide promotional, educational, and technical stream materials to groups, fairs and other special events.
- 10. In cooperation with regional field personnel from all divisions, develop brochure which describes the watershed and promotes best management practices within the watershed.

Current River Watershed
Riparian Corridor Enhancement Potential



Ranking factor based on the following formula: ((Rg+Rc+Ru+Sp+S1)/3)(Au/Aw)+(S*0.1) where:

Rg=Percent grassland riparian land use.

Rc=Percent cropland riparian land use.

Ru=Percent urban riparian land use.

Sp=Percent permanent stream.

SI=Percent losing stream.

Au=Unit area.

Aw=Watershed area

S=Number of Aquatic Oriented Species of Conservation Concern observed.

(Only those records listed in MDC 1999 c are included)